

CLAIMS:

1. X-ray examination apparatus for acquiring X-ray image data of a region of interest, comprising:

- an imaging unit (1-3) comprising an X-ray source (2) for emitting X-ray radiation and an X-ray detector (3) for detecting X-ray radiation after penetration of said region of interest,

- processing means (22) for determining a desired position of said imaging unit, at which X-ray image data shall be acquired, based on a predetermined image acquisition plan (P) and/or an actual position (D) of an instrument (11),

- control means (23) for determining position parameters of said imaging unit (1-3) for said desired position, and

- positioning means (30) for positioning said imaging unit (1-3) at said desired position by use of said position parameters.

2. X-ray examination apparatus as claimed in claim 1, wherein said positioning means (30) comprises automatic position control means for automatically positioning said imaging unit (1-3) at said desired position.

3. X-ray examination apparatus as claimed in claim 1, wherein said positioning means (30) comprises manual position control means (31) for manually positioning said imaging unit (1-3) at said desired position, a position check means (32) for checking if the desired position has been reached, a signaling means (33) for signaling if the desired position has been reached and/or how the desired position can be reached, and a tracking (12) means for tracking the actual position of said imaging unit (1-3).

25 4. X-ray examination apparatus as claimed in claim 1, further comprising tracking means (12, 13) for tracking the actual position of said instrument (11) and said imaging unit (1-3), wherein said control means (23) are operative for determining said position parameters by use of the tracked position (D) of said instrument (11).

5. X-ray examination apparatus as claimed in claim 1, wherein said predetermined image acquisition plan (P) is determined based on image data (I) of said region of interest, in particular based on pre-acquisitioned 3D image data.

5 6. X-ray examination apparatus as claimed in claim 1, wherein said processing means (22) comprise a calibration means for calibrating said imaging unit (1-3) with said predetermined image acquisition plan and/or said instrument (11).

7. X-ray examination apparatus as claimed in claim 1, wherein said imaging unit (1-3) further comprises a C-arm on which said X-ray source (2) and said X-ray detector (3) mounted.

8. X-ray examination apparatus as claimed in claim 1, wherein said desired position determines a desired plane or projection to be visualized, in particular with respect to said instrument (11) or with respect to pre-acquisitioned 3D image data.

9. X-ray examination method for acquiring X-ray image data of a region of interest by use of an imaging unit (1-3) comprising an X-ray source (2) for emitting X-ray radiation and an X-ray detector (3) for detecting X-ray radiation after penetration of said region of interest, comprising the steps of:

- determining a desired position of said imaging unit (1-3), at which X-ray image data shall be acquired, based on a predetermined image acquisition plan and/or an actual position of an instrument (11),
- determining position parameters of said imaging unit (1-3) for said desired position,
- positioning said imaging unit (1-3) at said desired position by use of said position parameters, and
- acquiring X-ray image data of said region of interest at said desired position.